

APR 12 2002

**510(k) Summary****Summary****Substantial Equivalence Summary for the Hygia Health Services  
Reprocessed NuTech® Calf Wrap**

In accordance with 21 CFR Part 807.92, this summary is submitted by:

Hygia Health Services, Inc.  
2800 Milan Court  
Suite 259  
Birmingham, Alabama 35211

Date: July 31, 2001

1. Contact Person

Geoff M. Fatzinger  
Director, Compliance and Regulatory Affairs  
(205) 943-6670

2. Name of Device

Classification Name: Compressible Limb Sleeve  
Common or Usual Name: Intermittent Pneumatic Compressible Limb Sleeve  
Review Panel: Cardiovascular  
Classification: Class II  
Proprietary Name: Hygia Health Services Reprocessed NuTech® Calf Wrap.

**HYGIA HEALTH SERVICES**

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3. Predicate Device

Classification Name: Compressible Limb Sleeve  
Common Name: Intermittent Pneumatic Compressible Limb Sleeve  
Classification: Class II  
Proprietary Name: NuTech® Universal Calf Wrap

4. Statement of Substantial Equivalence

The Hygia Health Services Reprocessed NuTech® Calf Wrap employs no new technology other than the method used to reprocess the sleeve in order to allow the device to be utilized more than once. The Hygia Health Services Reprocessed NuTech® Calf Wrap is substantially equivalent to the NuTech® Universal Calf Wrap in that the basis of operation for both of the devices is the intermittent inflation of a single inflation chamber, which is placed around the patient's gastrocnemius muscle. The garments are then connected to a controller via a snap-lock connector. Inflation of the garment is accomplished using ambient air, and a controller cycle that functions to alternately inflate and deflate the device in a predetermined manner and interval.

The Hygia Health Services Reprocessed NuTech® Calf Wrap is substantially equivalent in function, operating parameters, and intended use to the NuTech® Universal Calf Wrap that is currently commercially available and in distribution. The predicate device, the NuTech® Universal Calf Wrap, is marked for "single-patient use only". Hygia Health Services does not change the device in any way except to render the device 'reusable' by placing it through a scientifically validated thermal kill pasteurization process. The Hygia Health Services HLD protocol does not alter the device's efficacy, safety, composition, or intended use.

5. Description of the Device

The Hygia Health Services Reprocessed NuTech® Calf Wrap is a compressible limb device for the lower limb, that when attached to an approved controller, provides intermittent pneumatic compression of the gastrocnemius muscle. The garment is constructed out of brushed nylon with an elastic lining. The single inflation chamber is constructed from the garment itself. The device has an internal coating of a latex free polymer that creates an airtight seal. The inner lining is elastic, which allows for the inflation. The inflation tube is constructed of poly vinyl chloride (PVC), which terminates in a snap-lock connector. The hook fasteners are made of polyethylene. The garments are placed around the gastrocnemius muscle of the calf and secured with a hook and loop fastener. As the garment compress the muscle, venous pressure is increased, ejecting the blood upward toward the heart. After a rapid compression, the garment deflates

allowing the veins to refill and bring oxygenated blood to the lower limbs. The pressure of compression is determined by the controller and is adjusted by altering the readout on the controller.

6. Intended Use of Device

The Hygia Health Services Reprocessed NuTech® Calf Wrap is designed to operate in the identical manner as the predicate device, the NuTech® Universal Calf Wrap. It is designed to apply compression to a patient's gastrocnemius muscle for the prevention of deep vein thrombosis (DVT) as well as the treatment of edema secondary to venous insufficiency. The device is used in both the home and institutional settings on patient populations for which this device applicable.

7. Technological Characteristics

The technological characteristics of the Hygia Health Services Reprocessed NuTech® Calf Wrap are identical to the original NuTech® Universal Calf Wrap in overall design, materials, energy source, mode of operation, and performance characteristics. Hygia Health Services employs no new technological characteristics other than the scientifically validated thermal high-level disinfection process.

8. Performance Data

Nonclinical Tests- Comparative bench testing was utilized to assess and prove similarity of function between the Hygia Health Services Reprocessed NuTech® Calf Wrap and the predicate device, the NuTech® Universal Calf Wrap. All tests found that functional and operational performance characteristics including compression, pressure control, and timing sequence were substantially equivalent. Safety and operational parameters regarding controller connections were also found to be equivalent.

Clinical Tests- Clinical tests were summarized in support of the premarket notification submission.

Test Conclusions- Clinical and nonclinical test results of the Hygia Health Services Reprocessed NuTech® Calf Wrap indicated substantial equivalence in all aspects to the predicate device, the NuTech® Universal Calf Wrap.



Food and Drug Administration  
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Rockville MD 20850

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Mr. Geoff M. Fatzinger, BS MS  
Director, Compliance and Regulatory Affairs  
c/o Hygia Health Services, Inc.  
2800 Milan Court, Suite 259  
Birmingham, AL 35211

Re: K012657  
Trade Name: Hygia Health Services Reprocessed NuTech® Calf Wrap  
Regulation Number: 21 CFR 870.5800  
Regulation Name: Compressible Limb Sleeve  
Regulatory Class: Class II (two)  
Product Code: JOW  
Dated: February 7, 2002  
Received: February 11, 2002

Dear Mr. Fatzinger:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to such additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); good manufacturing practice requirements as set

forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

This letter will allow you to begin marketing your device as described in your Section 510(k) premarket notification. The FDA finding of substantial equivalence of your device to a legally marketed predicate device results in a classification for your device and thus, permits your device to proceed to the market.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801 and additionally 21 CFR Part 809.10 for in vitro diagnostic devices), please contact the Office of Compliance at (301) 594-4648. Additionally, for questions on the promotion and advertising of your device, please contact the Office of Compliance at (301) 594-4639. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). Other general information on your responsibilities under the Act may be obtained from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 443-6597 or at its Internet address <http://www.fda.gov/cdrh/dsma/dsmamain.html>

Sincerely yours,



Donna-Bea Tillman, Ph.D.

Acting Director

Division of Cardiovascular  
and Respiratory Devices

Office of Device Evaluation

Center for Devices and

Radiological Health

Enclosure

## Indications For Use

Applicant: Hygia Health Services, Inc.

510(k) Number: K012657

Device Name: Hygia Health Services Reprocessed NuTech® Calf Wrap

### Indications For Use:

The Hygia Health Services Reprocessed NuTech® Calf Wrap is used as a non-invasive therapeutic method to be used by patients in the home or institutional setting in order to:

- Prevent deep vein thrombosis
- Reduce wound healing time
- Treat and assist healing of venous leg ulcers
- Reduce edema caused by venous insufficiency in the lower extremities

## PRECAUTIONS AND CONTRAINDICATIONS

### Contraindications:

Wraps may not be recommended for patients with the following:

1. Congestive heart failure
2. Known or suspected deep vein thrombosis
3. Severe arteriosclerosis or other ischemic vascular disease
4. Any local leg condition in which the wrap would interfere such as dermatitis, gangrene, recent skin graft, or untreated infected wounds

### Precautions:

1. One must ensure that the wrap is applied properly.
2. One must ensure that the wrap is correctly connected to the pump and that the connection is secure.
3. If numbness, tingling, or leg pain is experienced by the patient, the wrap should be removed.